

WHAT IS CLAIMED IS:

1. A light-emitting device comprising:

a first transistor;

a second transistor,

5 a third transistor;

a fourth transistor;

an OLED;

a power line;

a signal line; and

10 a scanning line,

wherein gate electrodes of said third and fourth transistors are both connected to said scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

15 wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

wherein a source region of said first transistor is connected to said power line, and

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED.

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2. A light-emitting device according to claim 1, wherein said third and fourth transistors being reverse in polarity to said second transistor.

3. A light-emitting device according to claim 1, wherein said third and fourth  
25 transistors are same in polarity.

4. A light-emitting device according to claim 1, wherein said first and second transistors are same in polarity.

5 5. An electronic device comprising the light emitting device according to claim 1, wherein said electronic device is selected from the group consisting of an organic light emitting display device, a digital still camera, a lap-top computer, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and mobile telephone.

6. A light-emitting device comprising:  
a first transistor;  
a second transistor;  
10 a third transistor;  
a fourth transistor;  
an OLED;  
a power line;  
a signal line;  
15 a first scanning line; and  
a second scanning line,  
wherein gate electrodes of said third and fourth transistors are both connected to said first scanning line,  
wherein one of source and drain regions of said third transistor is connected to said  
20 signal line and the other to a gate electrode of said first transistor,  
wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,  
wherein a source region of said first transistor is connected to said power line,  
wherein one of source and drain regions of said second transistor is connected to the  
25 drain region of said first transistor and the other to a pixel electrode of said OLED, and  
wherein a gate electrode of said second transistor is connected to said second scanning line.

7. A light-emitting device according to claim 6, wherein said third and fourth  
30 transistors being reverse in polarity to said second transistor.

8. A light-emitting device according to claim 6, wherein said third and fourth transistors are same in polarity.

5 9. A light-emitting device according to claim 6, wherein said first and second transistors are same in polarity.

10 10. An electronic device comprising the light emitting device according to claim 6, wherein said electronic device is selected from the group consisting of an organic light emitting display device, a digital still camera, a lap-top computer, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and mobile telephone.

11. A light-emitting device comprising:

15 a first transistor;

a second transistor;

a third transistor;

a fourth transistor;

an OLED;

20 a power line;

a signal line; and

a scanning line,

wherein gate electrodes of said second, third and fourth transistors are all connected to said scanning line,

25 wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

wherein a source region of said first transistor is connected to said power line, and

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED.

12. A light-emitting device according to claim 11, wherein said third and fourth  
5 transistors being reverse in polarity to said second transistor.

13. A light-emitting device according to claim 11, wherein said third and fourth transistors are same in polarity.

10 14. A light-emitting device according to claim 11, wherein said first and second transistors are same in polarity.

15 15. An electronic device comprising the light emitting device according to claim 11, wherein said electronic device is selected from the group consisting of an organic light emitting display device, a digital still camera, a lap-top computer, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and mobile telephone.

16. A light-emitting device comprising:  
20 a first transistor;  
a second transistor;  
a third transistor;  
a fourth transistor;  
a fifth transistor;  
25 an OLED;  
a power line;  
a signal line;  
a first scanning line; and  
a second scanning line,

wherein gate electrodes of said second, third and fourth transistors are all connected to said first scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor

5 wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED,

10 wherein a gate electrode of said fifth transistor is connected to said second scanning line, and

wherein one of source and drain region of said fifth transistor is connected to said power line and the other to the gate electrode of said first transistor.

15 17. A light-emitting device according to claim 16, wherein said third and fourth transistors being reverse in polarity to said second transistor.

18. A light-emitting device according to claim 16, wherein said third and fourth transistors are same in polarity.

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19. A light-emitting device according to claim 16, wherein said first and second transistors are same in polarity.

20. An electronic device comprising the light emitting device according to claim 16,  
25 wherein said electronic device is selected from the group consisting of an organic light emitting display device, a digital still camera, a lap-top computer, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and mobile telephone.

21. A method for driving a light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, an OLED, a power line, a signal line and a scanning line,

wherein gate electrodes of said third and fourth transistors are both connected to  
5 said scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

10 wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED, the method for driving said light emitting device comprising:

providing a first period in which said third and fourth transistors are on and a  
15 second period in which said third and fourth transistors are off in one frame period, wherein said second transistor is off in the first period and on in the second period; and

controlling a drain current of said first transistor in magnitude in the first period by an analog video signal in order to control a brightness of said OLED.

20 22. A method for driving a light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, an OLED, a power line, a signal line, a first scanning line and a second scanning line,

wherein gate electrodes of said third and fourth transistors are both connected to said first scanning line,

25 wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED, and

wherein a gate electrode of said second transistor is connected to said second scanning line, the method for driving said light emitting device comprising:

5 providing a first period in which said third and fourth transistors are on and a second period in which said third and fourth transistors are off in one frame period, wherein said second transistor is off in the first period and on in the second period; and

controlling a drain current of said first transistor in magnitude in the first period by an analog video signal in order to control a brightness of said OLED.

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23. A method for driving a light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, an OLED, a power line, a signal line and a scanning line,

15 wherein gate electrodes of said second, third and fourth transistors are all connected to said scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

20 wherein a source region of said first transistor being connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED, the method for driving a light emitting device comprising:

25 providing a first period in which said third and fourth transistors are on and a second period in which said third and fourth transistors are off in one frame period, wherein said second transistor is off in the first period and on in the second period; and

controlling a drain current of said first transistor in magnitude in the first period by an analog video signal in order to control a brightness of said OLED.

24. A method for driving light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, a fifth transistor, an OLED, a power line, a signal line, a first scanning line and a second scanning line,

wherein gate electrodes of said second, third and fourth transistors are all connected  
5 to said first scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

10 wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED,

wherein a gate electrode of said fifth transistor is connected to said second scanning line, and

15 wherein one of source and drain regions of said fifth transistor is connected to said power line and the other to the gate electrode of said first transistor, the method for driving said light emitting device comprising:

providing a first period in which said third and fourth transistors are on and said fifth transistor is off, a second period in which said third and fourth transistors are off and  
20 said fifth transistor is off, and a third period in which said third and fourth transistors are off and said fifth transistor is on, wherein said second transistor is off in the first period, on in the second period and on in the third period; and

controlling a drain current of said first transistor in magnitude in the first period by an analog video signal in order to control a brightness of said OLED.

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25. A method for driving a light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, an OLED, a power line, a signal line and a scanning line,

wherein gate electrodes of said third and fourth transistors are both connected to  
30 said scanning line,



wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

5 wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED, the method for driving said light emitting device comprising:

providing a first period and a second period corresponding to respective bits of a digital video signal in one frame period, wherein in the first period, said third and fourth transistors are on and said second transistor is off and in the second period, said third and fourth transistors are off and said second transistor is on; and

controlling said OLED in a presence or an absence of light emission in the first period on the basis of information possessed by each bit of a corresponding one of the digital video signal.

26. A method for driving a light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, an OLED, a power line, a signal line, a first scanning line and a second scanning line,

20 wherein gate electrodes of said third and fourth transistors are both connected to said first scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

25 wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor is connected to the drain region of said first transistor and the other to a pixel electrode of said OLED,

30 wherein a gate electrode of said second transistor is connected to said second scanning line, the method for driving said light emitting device comprising:

providing a first period and a second period corresponding to respective bits of a digital video signal in one frame period, wherein in the first period, said third and fourth transistors are on and said second transistor off and in the second period, said third and fourth transistors are off and said second transistor is on; and

5       controlling said OLED in a presence or an absence of light emission in the first period on the basis of information possessed by each bit of a corresponding one of the digital video signal.

27. A method for driving a light-emitting device comprising a first transistor, a  
10   second transistor, a third transistor, a fourth transistor, an OLED, a power line, a signal line and a scanning line,

      wherein gate electrodes of said second, third and fourth transistors are all connected to said scanning line,

      wherein one of source and drain regions of said third transistor is connected to said  
15   signal line and the other to a gate electrode of said first transistor,

      wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

      wherein a source region of said first transistor is connected to said power line, and

      wherein one of source and drain regions of said second transistor is connected to the  
20   drain region of said first transistor and the other to a pixel electrode of said OLED, the method for driving a light emitting device comprising:

      providing a first period and a second period corresponding to respective bits of a digital video signal in one frame period, wherein in the first period, said third and fourth transistors are on and said second transistor is off and in the second period, said third and  
25   fourth transistors are off and said second transistor is on; and

      controlling said OLED in a presence or an absence of light emission in the first period on the basis of information possessed by each bit of a corresponding one of the digital video signal.

28. A method for driving light-emitting device comprising a first transistor, a second transistor, a third transistor, a fourth transistor, a fifth transistor, an OLED, a power line, a signal line, a first scanning line and a second scanning line,

wherein gate electrodes of said second, third and fourth transistors are all connected

5 to said first scanning line,

wherein one of source and drain regions of said third transistor is connected to said signal line and the other to a gate electrode of said first transistor,

wherein one of source and drain regions of said fourth transistor is connected to said signal line and the other to a drain region of said first transistor,

10 wherein a source region of said first transistor is connected to said power line,

wherein one of source and drain regions of said second transistor being connected to the drain region of said first transistor and the other to a pixel electrode of said OLED,

wherein a gate electrode of said fifth transistor is connected to said second scanning line, and

15 wherein one of source and drain region of said fifth transistor is connected to said power line and the other to the gate electrode of said first transistor, the method for driving said light emitting device comprising:

providing a first period, a second period and a third period corresponding to respective bits of a digital video signal in one frame period, wherein in the first period, said

20 third and fourth transistors are on and said second and fifth transistors are off, in the second period, said third and fourth transistors are off, said second transistor is on, and said fifth transistor is off, and in the third period, said third and fourth transistors are off, said second transistor is on, and said fifth transistor is on; and

controlling said OLED in a presence or an absence of light emission in the first

25 period on the basis of information possessed by each bit of a corresponding one of the digital video signal.